

to the Hydromedusæ. A satisfactory classification of the Antho- and Leptomedusæ is not, it is insisted, at present possible.

The section on the Anthozoa has been written by Mr. G. C. Bourne; and certainly no one else is better qualified for this task. His account of the Ctenophora is interesting. The supposed Planarian affinities of Ctenoplana and Cœloplana Mr. Bourne views with disfavour. Again, Mr. Bourne joins issue with Dr. Willey concerning the claim of the Ctenoplana and Cœloplana to be regarded as primitive forms. We have no evidence, Mr. Bourne contends, to show whether they are primitive or derived forms.

The illustrations are numerous and well executed. A large number are original. Some of these are drawn by the authors themselves. Those by Prof. Minchin and Mr. Bourne are especially good. Many of those illustrating the external forms of sponges are by Mr. P. J. Bazand, and are really excellent.

## PROCEEDINGS OF LEARNED SOCIETIES.

### GEOLOGICAL SOCIETY.

February 21st, 1900.—J. J. H. Teall, Esq., M.A., F.R.S.,  
President, in the Chair.

The following communication was read:—

‘Further Evidence of the Skeleton of *Eurycarpus Oweni*.’  
By Prof. H. G. Seeley, F.R.S., F.L.S., V.P.G.S.

The original specimen from which this species was named was obtained from the Sneewberg (South Africa) in 1876, and after being doubtfully referred to *Dicynodon* was described and figured in 1889. It was presented to the British Museum by Mr. Thomas Bain, through Sir Henry Barkly. The skull was found with the complete specimen, and a short memorandum of its characters, with a sketch of the skeleton, including the skull, was made by Mr. T. Bain and has been preserved in the British Museum. Half of the counterpart of the slab was presented to the Author by the Rev. C. Murray, and by means of it complete casts of part of the skeleton have been obtained.

From Mr. Bain’s sketch the Author is able to give some account of the skull, including its dimensions. From the material mentioned above, he gives new facts with regard to the vertebral column, the ribs, the shoulder-girdle, the fore-limb, the hind-limb, and the armour, which was present upon the limbs and the fore part of the body.

The locality from which the animal was obtained had already

yielded to Mr. A. G. Bain *Lycosaurus parvialis*, *Tigrisuchus simus*, *Cynosuchus suppostus*, *Scalaposaurus constrictus*, and *Dicynodon leoniceps*. It would therefore appear to be one of the chief localities for the Lycosaurian types of Theriodontia and to be on the horizon of the *Dicynodon*-beds. The recovery of the missing half of the Murray slab, with the evidence of the skull and pelvis which it would give, is to be desired in completion of our knowledge of this fossil animal.

March 21st, 1900.—H. W. Monckton, Esq., F.L.S.,  
Vice-President, in the Chair.

The following communication was read:—

‘On a Bird from the Stonesfield Slate.’ By Prof. H. G. Seeley,  
F.R.S., F.L.S., V.P.G.S.

During his residence at Oxford the late Earl of Enniskillen made a collection of Ornithosaurian bones from Stonesfield, which was acquired by the British Museum in 1866. Among these is one identified by the Author in 1899 as the right humerus of a bird about as large as a flamingo. The bone is complete, except for fracture through the proximal articulation, and the specimen is, on the whole, well preserved. The chief characters available for comparison are the form of the shaft, the character of the proximal end, especially the ulnar tuberosity and the radial crest, and the form of the distal end. The character which first showed the fossil to be a bird was the ulnar tuberosity; probably the flamingo approaches as closely as any living genus to the Stonesfield fossil in this feature. The radial crest shows affinities with those of the flamingo and the eider-duck. The impression left by the humero-cubital muscle on the external surface above the condyles is almost identical with that seen in the flamingo. ‘The varied affinities of this large Carinate bird appear to lie midway between the ducks and geese on the one side, and the herons and flamingos on the other. It may be placed in a new family; but its characters are in all respects such as might have occurred in an existing bird. There is no indication of affinity to the *Archaeopteryx*, or that the bird diverged in any way from modern types.’

April 25th, 1900.—J. J. H. Teall, Esq., M.A., F.R.S.,  
President, in the Chair.

The following communication was read:—

‘On a complete Skeleton of an Anomodont Reptile from the Bunter Sandstone of Reichen, near Basel, giving new Evidence of the Relation of the Anomodontia to the Monotremata.’ By Prof. H. G. Seeley, F.R.S., F.L.S., V.P.G.S.

This skeleton was originally described by Wiedersheim under the name of *Labyrinthodon Rüttimeyeri* in 1878. The bones are now differently interpreted:

- The reputed humerus is the interclavicle.  
 " " scapula is the humerus.  
 " " supra-scapula is the left coracoid (fig. 2).  
 " " " " " right scapula (fig. 1).  
 " " right and left clavicles are the ribs.  
 " " right and left coracoids are the pre-coracoid and coracoid of the right side.

Five digits are identified in place of four in 1878. These osteological identifications are inconsistent with reference of the type to the Labyrinthodontia, and it is accordingly described as a new genus, which is placed in association with *Procolophon* as a separate family in the tribe Procolophenia.

The Author discusses various views which have been expressed with regard to the position of the Labyrinthodonts. He has already separated these animals from the Amphibia and combined them with the Ichthyosauria in a group of reptiles named Cordylomorpha, and he enumerates a series of characters which constitute so close a link between the two types 'that it is not possible, in the absence of evidence, to conceive of their being referred to different classes of animals.'

'But if the order Labyrinthodontia is transferred to the Reptilia, it is then manifest that by including such genera as *Branchiosaurus* and *Archegosaurus*, in which gill-arches are found, it introduces into the Reptilia a character hitherto unknown, and commonly regarded as Amphibian. . . . If the osteology of an ordinal type is Reptilian, it cannot be placed in the Amphibia, because two or three genera, or the whole group preserve gill-arches. . . . The Labyrinthodontia may or may not be a homogeneous subclass or order, though the circumstance that many writers have separated its groups on different principles, and into a varying number of orders, is some evidence that it includes a wide range in character. . . . In no part of the skeleton is there a close correspondence between living Amphibia, which are probably unknown before the Tertiary period, and the extinct Labyrinthodontia, which are only known with certainty in the Carboniferous, Permian, and Triassic periods of time.'

'If the sub-orders of Labyrinthodontia are sub-orders of Reptilia and not of Amphibia, the transition which *Pareiasaurus* exhibits from Labyrinthodonts to Mammals ceases to be an anomaly.'

'The close resemblance of form of the bones in the several parts of the skeleton now described with Monotremata and Anomodontia makes the border-line between Reptiles and Mammals more difficult to define.'

The fossil is identified as an Anomodont reptile, chiefly on the basis of resemblance to *Procolophon* and *Pareiasaurus*. It is shown not to be a mammal by the large parietal foramen, the composite structure of the lower jaw, and the presence of the prefrontal bone. It differs from known Anomodonts in making a somewhat closer approximation to Monotreme mammals than has hitherto been evident, and this correspondence extends to successive segments of both the fore- and hind-limbs.

The teeth are in sockets placed obliquely, with conical crowns compressed to sharp lateral margins, and curved inward. The proportions of the vertebral column are those of *Echidna*, though the transverse processes are longer, as in *Pareiasaurus*. The ribs are like those of a Monotreme, though the sacral ribs are longer. The shoulder-girdle resembles that of *Procolophon*, and differs from typical Anomodonts in the constituent bones being unanchylosed, and in the precoracoid having a large anterior extension in advance of the scapula. The sternum appears to have been unossified, as in Crocodilia. The humerus is widely expanded at both extremities and twisted, but does not show the peculiar lateral curvature seen in Monotremes. The ulna gives no evidence of an olecranon-process; it is larger than the radius, and appears to articulate with the humerus. The pelvic bones are without acetabular or obturator-perforations, are not anchylosed together, and the ilium is not expanded transversely. The hind-limb is no larger than the fore-limb. The femur is more slender than the similar bone in *Echidna*. The fibula is prolonged proximally beyond the stout tibia, round which it may rotate. The proximal row of the tarsus is one large bone, formed of the blended astragalus and os calcis.

In conclusion, the Author argues that the points of structure are so few in which Monotreme mammals make a closer approximation to the higher mammals than is seen in this fossil and other Anomodontia, that the Monotreme resemblances to fossil reptiles become increased in importance. He believes that a group Theropsida might be made to include Monotremata and Anomodontia, the principal differences (other than those of the skull) being that Monotremes preserve the marsupial bones and the atlas vertebra. *Ornithorhynchus* shows pre-frontal and post-frontal bones, and has the malar arch formed as in Anomodonts and some other reptiles.

#### MISCELLANEOUS.

*The Dates of Esper's 'Schmetterlinge.'* By C. DAVIES SHERBORN.  
F.Z.S. &c., and B. B. WOODWARD, F.L.S. &c.

THE following incomplete notes (pp. 138-140) on the dates of E. J. C. Esper's 'Die europäischen Schmetterlinge in Abbildungen' &c., collected over several years, may be useful to students until further information be forthcoming. We have to thank Mr. L. B. Prout for some valuable memoranda, the references "A. V." (=Allgemeines Verzeichniss derer Bucher, &c.: Leipzig, Weidmann) coming from his manuscripts. "G. A." signifies "Göttingische gelehrte Anzeigen." The dates in square brackets are doubtful and are those used by Mr. Sherborn in his 'Index Animalium.'

The dates of Esper's 'Die ausländischen (aussereurop.) Schmetterlinge' have been published by Prof. Aurivillius in K. Vet.-Ak. Handl. xix. (5) 1882, p. 182. We think the date of the last three parts (14-16, pp. 205-254) will be found to be 1798. The 1801 titlepage belongs to the so-called second edition.